
Asthma in Educational Settings

One School's Story...

In 2004, the American Lung Association of Washington (ALAW) along with the Inland Northwest Asthma Coalition (INAC) approached local schools in the Spokane, Washington area about participating in an Asthma Friendly Schools Initiative Demonstration Project.

The project is designed to assist local communities and community organizations in planning and implementing comprehensive asthma management programs within their local schools and existing school structure. At that time, schools were hesitant to participate, concerned about the already overburdened school nurse and worried that an asthma program would give schools a negative image.

Through several meetings the ALAW and INAC were able to convince Stevens Elementary that the program would greatly benefit their students, parents and the school by reducing absenteeism and creating a healthier school environment. With this, Stevens Elementary agreed to participate as a pilot site.

Through a needs assessment conducted with Stevens school key actions steps were identified which included education and support for families with asthma. In 2005, administration, staff, teachers, parents and the Spokane Public School District head custodians and school nurses were provided asthma education and a wellness carnival was held for students, parents and the community at the school.

The positive results of the program prompted the ALAW to prepare a Lung Health Took Kit for each of the 35 elementary schools in the Spokane Public School system. A Physical Education Program grant to the District was used to pay a select number of teachers to expand the curriculum to include a broader lung health approach that will be implemented by the District in the Fall of 2005.



Asthma in Educational Settings

Asthma is among the most common of the chronic diseases that affect children.¹ Especially under-treated or untreated, asthma can hinder a child's ability to attend, participate and learn in schools and/or childcare facilities (educational settings). In Washington State an estimated 120,000 youth currently have asthma and 1 in 10 households with children report having a child with asthma.² Most of these children and youth are enrolled in educational settings. It is estimated that children spend an average of six to nine hours a day in school or childcare facilities/programs.

Due to the frequency of asthma and the potential for serious consequences, schools and child care programs play a unique role in asthma management. All school and childcare providers must be alert to symptoms that may indicate asthma and have policies in place that help staff to assist children with managing asthma. This section focuses mainly on asthma in the school setting.

Asthma in Youth

Asthma is often first diagnosed in early childhood. Between 50% and 90% of children with asthma develop symptoms (coughing, wheezing, shortness of breath or rapid breathing, and chest tightness) before the age of five.³ Among young children, boys are more likely than girls to have asthma. By middle school age asthma in boys drops and asthma in girls increases. This trend continues into adulthood. Hormones that become activated among females during puberty may contribute to asthma.⁴

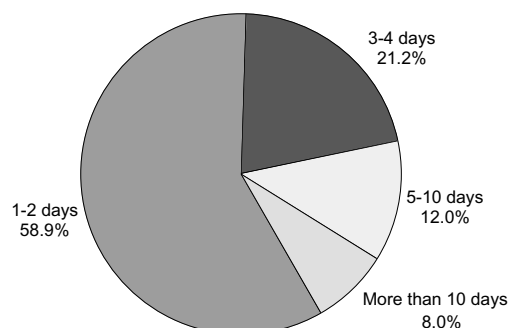
Asthma can be diagnosed at any age and for most is a life-long chronic disease. In Washington, one in seven youth with asthma reported having asthma symptoms every day.⁵ Youth were more likely to visit the emergency department for asthma than adults and 8th graders were twice as likely as adults to report emergency departments/urgent care visits for asthma during the previous year.⁶

Youth with asthma also reported significantly poorer health than youth without asthma. For example, among 10th graders nearly four times as many youth with asthma reported having a long-term disability or long-term health condition, one in five youth with asthma reported that they believe other people would consider them to have a disability, and one in four (more than four times as many as 10th graders without asthma) said that they had to limit their activities because of a disability or long-term health condition.⁷

Asthma and Academic Performance and Attendance

The CDC's National Health Interview Survey estimated that 10.1 million lost days of school, 12.9 million contacts with medical doctors and 200,000 hospitalizations were directly attributed to asthma per year.⁸ In Washington, not all schools track the reason a child is absent from school. However when students with asthma were asked, they reported that 59% missed one or two days, but 20% missed a week of school or more in the previous year (Figure 1) due to their asthma.⁹

Figure 1: Distribution of Days Washington Youth Missed School During the Previous Year because of Asthma, among Youth with Asthma Who Missed any School Days



Source: 2004 Washington State Healthy Youth Survey (HYS), grades 8-10-12 combined. Dilley, J., Pizacani, B., Macdonald, S., & Bardin, J. (2005). *The Burden of Asthma in Washington State*. Olympia, WA: Washington State Department of Health. Pg 19

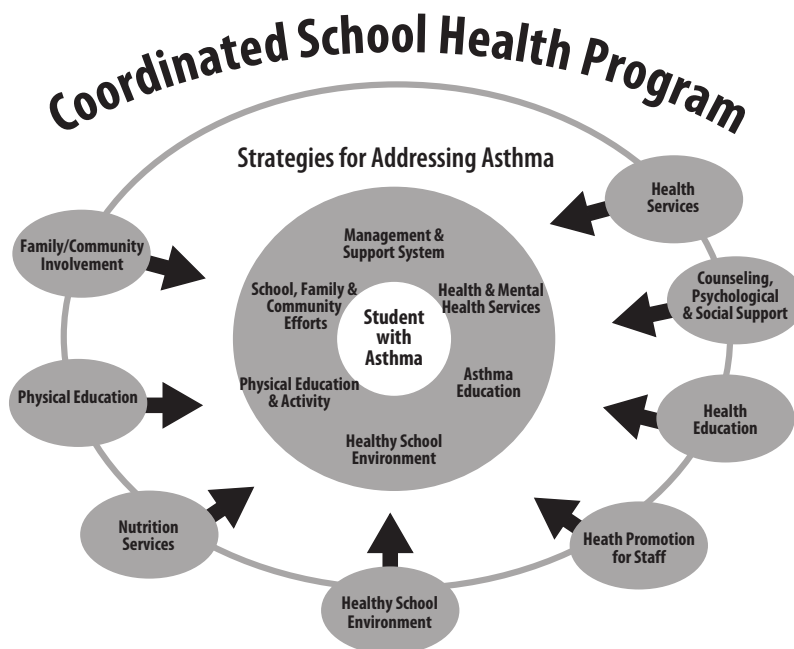
- 1 Henry CN, DuPaul GJ. (2004). Pediatric Asthma Among African American Children: The Emerging Role of the School Psychologist. *NASP Communiqué*, Vol. 33, #2
- 2 Dilley J., Pizacani B., Macdonald S., Bardin J. (2005). *The Burden of Asthma in Washington State*. Olympia, WA: Washington State Department of Health. pg: i
- 3 Centers for Disease Control. (2004). Pathophysiology. In *National Asthma Training Curriculum* [CD-ROM]. Centers for Disease Control.
- 4 Dilley J., Pizacani B., Macdonald S., Bardin J. (2005). *The Burden of Asthma in Washington State*. Olympia, WA: Washington State Department of Health. pg: 49
- 5 Ibid. pg:14
- 6 Ibid. pg:6
- 7 Ibid. pg: 21
- 8 Department of Health and Human Services. (2000). *Action Against Asthma A Strategic Plan for the Department of Health and Human Services*.
- 9 Dilley J., Pizacani B., Macdonald S., Bardin J. (2005). *The Burden of Asthma in Washington State*. Olympia, WA: Washington State Department of Health. pg: 31

Loss of school time may contribute to poor academic performance and social development. Youth who miss school or have more severe asthma symptoms are less likely to have high academic achievement than youth with fewer asthma symptoms or those without asthma. Lower academic achievement may be related to loss of sleep due to nightly asthma symptoms and/or the medications used to control asthma may interfere with a student's ability to concentrate, increase feelings of depression and anxiety, and interfere with short-term memory.¹⁰

In an effort to address health in educational settings, the Centers for Disease Control and Prevention developed a model called the *Coordinated School Health Program*. Later, this model was applied to different health conditions. *The Coordinated School Health Program: Strategies for Addressing Asthma* has six core components.

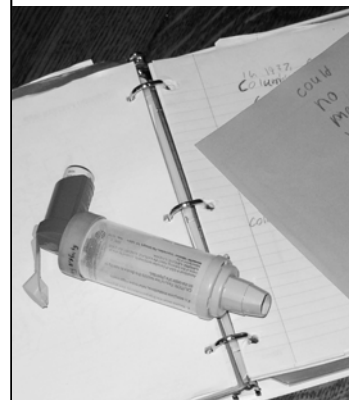
1. Establish management and support services for asthma-friendly schools
2. Promote appropriate school health and mental health services for students with asthma
3. Provide asthma education and awareness for students and staff
4. Provide safe, enjoyable physical education and activity opportunities for students with asthma
5. Coordinate school, family and community efforts to better manage asthma systems and reduce school absences among students with asthma, and
6. Provide a safe and healthy school environment to reduce asthma triggers¹¹

Management and Support Services for Asthma-friendly Schools



The Coordinated School Health Program identifies the following steps in managing and supporting an asthma-friendly school:

1. Designating a person to coordinate asthma activities
2. Coordination and commitment of the school district, school administration and school health team
3. Development of written policies and procedures that clearly outline how asthma will be managed during the school hours and at all school-sponsored events
4. Utilizing existing school health records to identify students with diagnosed asthma, and
5. Development of a communication system



10 Hamm EM. (2004). Managing Asthma in the Classroom. *Childhood Education Olney*: Vol. 81, Iss.1, p:16-19.

11 Centers for Disease Control and Prevention. (2002). *Strategies for Addressing Asthma within a Coordinated School Health Program, With Updated Resources*. Atlanta Georgia: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion. Available at: www.cdc.gov/HealthyYouth/asthma/pdf/strategies.pdf

12 National Heart Lung, and Blood Institute. (2004). Presentation at Chest Conference Coalition Building Session. Seattle. October.



The Center for Disease Control (CDC) recommends policies that help to identify students with diagnosed asthma and focus on their health needs. A study conducted by the National Health, Lung, and Blood Institute found that well-designed screening questions for parents and children were more effective than mass screening for identifying children in schools with asthma. Policies that support population or school-based screening programs such as mass screening (e.g., spirometry lung function testing) have not been recommended or supported by the World Health Organization or the American Academy of Pediatrics.^{13, 14}

Policy changes can be made both at the school district or individual school level. Changes could be made upon reviewing how children have access to asthma medications, providing adaptations in physical education, providing teacher and staff education and reducing asthma-specific triggers in the school. A resource for school districts is the CDC School Health Index.

School Absenteeism Tracking

Tracking absenteeism can be an important tool for schools to help identify trends in asthma related missed days. Absenteeism data that tracks the reasons, even if in broad categories, can help schools identify children who are having a particular problem at home or at school. Children with asthma who are frequently absent may not be taking their medications correctly or children with asthma may be going home in the middle of the day due to an exposure at school, which is worsening their asthma. If this information is not tracked, then issues are not readily identified and cannot be addressed.

Currently, there is no uniform mechanism to track the reasons for school absences in Washington State. In 2002 the Department of Health received a CDC Environmental Public Health Tracking Network to support electronic data development activities. One of the activities funded was the development of a standardized electronic school-based collection of student health and environmental quality data in three pilot school districts in Washington State. The goal of this initiative is the development of sustainable models for the systematic collection of electronic student health and indoor air quality data related to asthma and asthma-like conditions among students. The pilot included four primary data streams:

- Student absenteeism data by broad categories including asthma or asthma-like conditions
- Chronic student health conditions data, which includes asthma
- School nursing room student visit information, and
- School indoor environmental quality data.

These activities support characterization of student asthma rates, attack frequency, and reasons for absenteeism in schools as well as indoor air environmental factors associated with asthma. This ongoing initiative has provided many benefits in pilot school districts. It has shown to be cost effective and outlined the need for electronic school health and environmental tracking. The program is being explored for statewide expansion.

Appropriate School and Mental Health Services for Students with Asthma

Policies requiring an asthma action plan (also called an asthma management plan) and medical/treatment orders for every student with asthma should be in place and enforced to address the health needs of children with asthma in educational settings. This requires a coordinated effort between the health care provider, the community, the parent/guardian and the schools. Currently, school/district policies that address screening, development and implementation of individual health plans and emergency treatment plans for students with asthma are inconsistent throughout Washington's school systems.¹⁵

13 Centers for Disease Control and Prevention.(2002). *Strategies for Addressing Asthma within a Coordinated School Health Program, With Updated Resources*. Atlanta Georgia: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion.

14 Wheeler L, Boss LP, Williams PV. (2004). School Based Approaches to Identifying Students with Asthma. *Journal for School Health*. 74(9)

15 Dille J., Pizacani B., Macdonald S., Bardin J. (2005). *The Burden of Asthma in Washington State*. Olympia, WA: Washington State Department of Health. Pg 96

In 2002, Washington State passed the *Children with Life-threatening Health Conditions- Medical or Treatment Orders* law (RCW 28A.210.320) which stated that children with life-threatening health conditions must have a medication or a treatment order in place prior to their first day of school. The law defines life-threatening as "...a health condition that will put the child in danger of death during the school day if a medication or treatment order and a nursing plan are not in place." About 11% of the students identified with asthma were classified by school nurses as having "life-threatening asthma."¹⁶ Children with severe asthma are typically identified as having life-threatening illness for the school setting, those with mild asthma may not be. Since one-third of fatal asthma episodes occurred in children with mild asthma, school nurses must understand that students and parents may not view mild asthma as critical and therefore may not adhere to asthma medications or recognize asthma symptoms resulting in an acute asthma attack.¹⁷ Without medical or treatment orders (asthma action plans) these children may not have access to the rescue medications at school.

How Asthma Action and Emergency Care Plans are Different and Developed



School Nurse



Asthma Action Plan

A written, easy-to-understand description of how to manage an asthma exacerbation, including information that outlines the early signs of worsening asthma, the medications to use and how to use them, and specific instructions for when to contact the clinician or emergency department.
Parent/Guardian's Role

Health care provider prepares and the parent signs

Data suggests that some students in Washington with asthma do not have emergency care plans.¹⁸ The lack of resources to provide adequate nursing support, and communication challenges among parents, school nurses, and health care providers explain why more prevention plans are not in place for students with asthma, including those not classified as having "life threatening" asthma.

Asthma action plans have been accepted and utilized by clinicians and have been shown to result in fewer emergency room visits and hospitalizations for their patients with asthma. However, not all students have asthma action plans in place from their doctor.¹⁹ The 2004, Washington State Healthy Youth Survey (HYS), combined results for 8th, 10th and 12th grade students found that about one-third of youth with asthma had received a written asthma plan

Emergency Care Plan

A plan drafted and implemented by the school nurse utilizing the asthma action plan to inform and train school personnel and to monitor and supervise the treatment and medication needs of the student.

School-based document.
Drafted by the School Nurse in coordination with the parents and health care provider.

Parent/Guardian's Role

16 Dilley J., Pizacani B., Macdonald S., Bardin J. (2005). *The Burden of Asthma in Washington State*. Olympia, WA: Washington State Department of Health. Pg: 93

17 Stempel DA (2003). The Pharmacologic Management of Childhood Asthma. *Pediatric Clinics of North America*. 50(3): 610-629.

18 Dilley J., Pizacani B., Macdonald S., Bardin J. (2005). *The Burden of Asthma in Washington State*. Olympia, WA: Washington State Department of Health. pg:96

19 Ting S. (2004). Multicolored simplified asthma guideline reminder (MSAGR) for better adherence to national/global asthma guidelines. *Clin Rev Allergy Immunol*. Oct;27(2):133-45.

- 20 Office of the Superintendent of Public Instruction. *Bulletin No 34-01 Learning and Teaching Support*. June 2001 <http://www.k12.wa.us/HealthServices/pubdocs/b034-01.pdf>.
- 21 Dilley J., Pizacani B., Macdonald S., Bardin J. (2005). *The Burden of Asthma in Washington State*. Olympia, WA: Washington State Department of Health. pg: 83
- 22 Centers for Disease Control and Prevention. (2002). *Strategies for Addressing Asthma within a Coordinated School Health Program, With Updated Resources*. Atlanta Georgia: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion.
- 23 CDC NCHS 1998 National Health Interview Survey, as cited in Department of Health & Human Services. *Healthy People 2010*. 2nd ed. Washington, DC: U.S. Government Printing Office, Nov 2000: page 24-18. http://www.healthypeople.gov/stat_107obj.htm.
- 24 National Association of School Nurses. *Position Statement: Caseload Assignment* <http://www.nasn.org/positions/caseload.htm>
- 25 Centers for Disease Control and Prevention. (2002). *Strategies for Addressing Asthma within a Coordinated School Health Program, With Updated Resources*. Atlanta Georgia: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion.

from their health care provider. An additional 24% did not know whether they had received a plan, but as the purpose of the plan is to provide instruction about pharmaceutical and self-management strategies, the plan can only be considered effective if a person is aware of it. More discussion of asthma action plans can be found in the *Health Care* chapter.

In 2005, the state legislature passed a law (28A.210 RCW) requiring the Office of the Superintendent of Public Instruction and the Washington State Department of Health to develop a uniform policy for all school districts providing for in-service training for school staff on symptoms, treatment, and monitoring of students with asthma and the additional observations that may be needed in different situations that may arise during the school day and during school-sponsored events. All school districts must adopt policies regarding asthma rescue procedures for each school within the district and each public elementary school and secondary school must grant to any student in the school authorization for the self-administration of medication to treat that student's asthma or anaphylaxis.

Although change in policies may occur through legislative action, they must be implemented at local level and reflect local need. The Office of Superintendent of Public Instruction (OSPI), offers school districts guidance about developing procedures that permit a student to carry his/her own medication and/or to self-administer the medication. These procedures typically involve a licensed health professional and parent/ guardian.

OSPI recommends that the school district consider

- Who approves the student self-administration, and
- The developmental/grade level of students permitted to self-administer medications.

The district may want to consider permitting students at certain grade or developmental levels to carry their own medication, prescription and/or over-the-counter medication. These determinations are within the purview of local school administration²⁰

The Role of the School Nurse in Washington

School nurses provide support services to students with a variety of health conditions, including asthma. The numbers of children with special health care needs in schools and the demands for schools to make accommodations and provide care for them are rising. School staff request health information from parent(s), at the beginning of the school year. If information is not provided by the parent(s), it is unlikely that the school nurse will be aware of a student with asthma. In Washington, the estimated asthma prevalence among K-12 students using parent-reported data was about 5% in comparison to 8-9% student asthma prevalence as reported by youth.²¹

The CDC recommends that a full-time registered nurse be available all day, every day at each school.²² Healthy People 2010, recommends a Nurse-to-Student Ratio of at least 1:750.²³ The National Association of School Nurses also recommends a student ratio of 1 nurse for every 750 general population students.²⁴ In Washington State, it is the recommended goal to implement the Staffing Model for the Delivery of School Health Services. The staff model consists of a nursing assessment to determine levels of care needed for individual students in a school (utilizing severity coding) and an overall school district model with staffing level recommendations (minimum 1 to 1,500).²⁵ Washington State falls far short of these goals. In rural districts many schools have access to a nurse only half a day or less per week, and nurses may be driving hundreds of miles a week to service these schools. In large districts, a nurse may serve multiple schools, spending one day per week at each site.

Washington State school nurses are mandated to set up care plans for all children with life-threatening conditions before the school year begins. Nurses must first identify and prioritize these students. Many times students with "mild" asthma may be moved to the bottom of the priority list unless they are in crisis.

School nurses' responsibilities include identifying students with asthma and setting up the individual and emergency health care plans and accommodations in coordination with the health care provider, parent, school personnel, and students. School nurses educate school staff on these children's special needs, and provide and/or monitor and supervise provision of medical treatments and medication administration. Services being provided may include peak flow monitoring, administration of rescue inhalers, nebulizer treatments, student health counseling, and negotiating classroom accommodations. The role of the school nurse is paramount in ensuring that students with asthma are safe at school.

Role of the School Counselor

School counselors, along with school nurses, can assist in supporting students with chronic disease (such as asthma) who have depression. Washington's Healthy Youth Survey (8th, 10th and 12th grades) reports that among youth with asthma, 39% reported being depressed and 24% reported thinking about suicide during the past year. These estimates are significantly greater than for youth without asthma.²⁶ Depression may be linked to perceived or real physical limitations related to having asthma. Further study on the link between asthma and depression need is needed.

Asthma Education and Awareness for Students and Staff

Schools can play an important role in providing increased education to parents of children with asthma; especially those recently diagnosed who are presenting at the school with asthma medications for the first time. Schools could enhance parents' understanding of effective management of asthma that includes four components:

1. Avoiding or controlling the factors that may make asthma worse (for example, environmental and occupational allergens and irritants),
2. Taking appropriate medications tailored to the severity of the disease,
3. Objective monitoring of the disease by the patient and the health care professional, and
4. Actively involving people with asthma in managing their own disease.²⁷

Use of rescue medications, school absences of children with asthma, and/or self-restriction from physical activities can be indicators of under-treated or unmanaged asthma. Schools can assist in identifying students and families that may need additional assistance in asthma self-management. Asthma self-management programs have shown dramatic improvements in the functional status and school performance of children who have asthma when comprehensive school-based asthma programs have the following elements:

- Focus on symptoms, grades, and school absences of children,
- Asthma management practices which involve the child(ren), their parents, classmates, and
- School personnel trained and encouraged to be involved in disease management.²⁸

The Global Initiative for Asthma recommends that "...specific advice about asthma and its management should be offered to school teachers, (and) physical education instructors..."²⁹ Several asthma curriculums exist to assist children living with asthma and their families. Children benefit from these programs by having reduced asthma-related absenteeism, fewer daytime symptoms, higher grades in science, and higher scores on an asthma management index.³⁰



Amy Van Dyken (b. 1973)

American swimming champion

Amy Van Dyken's doctor suggested she start swimming to relieve her severe asthma. Diligent training and asthma medications helped her become the first American woman to win four gold medals in one Olympic Games.

Courtesy Reuters/Gary Hershorn/Archive Photos.

26 Dilley J., Pizacani B., Macdonald S., Bardin J. (2005). *The Burden of Asthma in Washington State*. Olympia, WA: Washington State Department of Health. pg: 36

27 Ibid. pg: 63

28 Department of Health and Human Services. (2000). *Action Against Asthma A Strategic Plan for the Department of Health and Human Services*. Pg. 21

29 *Global Initiative for Asthma* National Institutes of Health. National Heart, Lung, and Blood Institute. 2002:90

30 Clark NM., Brown R., Joseph CL., Et al. (2004). Effects of a Comprehensive School-Based Asthma Program on Symptoms, Parent Management, Grades, and Absenteeism. *Chest*. 25: 1674-1679

- 31 Global Initiative for Asthma National Institutes of Health. National Heart, Lung, and Blood Institute. 2002:20
- 32 Taylor WR., Newacheck PW. (1992). Impact of Childhood Asthma on Health. *Pediatrics* 90:657-62
- 33 Center for Disease Control and Prevention. *National Asthma Training Curriculum*. CD-ROM 2005
- 34 rostoff J., Gamlin L. (2000). Asthma: The Complete Guide to Integrative Therapies. *Healing Arts Press*. Rochester, VT. 68
- 35 Welsh L., Kemp JG., Roberts RG. (2005). Effects of Physical Conditioning on Children and Adolescents with Asthma. *Sports Med*. 35(2):127-141.
- 36 Welsch L., Kemp JG., Roberts RG. Department of Respiratory Medicine, Royal Children's Hospital, Melbourne, Victoria, Australia School of Exercise, Australian Catholic University, Melbourne, Victoria, Australia. *Effects of Physical Conditioning on Children and Adolescents with Asthma*.
- 37 Camargo CA Jr., Weiss ST., Zhang S., et al. (1999). Prospective Study of Body Mass Index, Weight Change, and Risk of Adult Onset Asthma in Women. *Arch Intern Med*. 159:2582-8.
- 38 Shaheen SO. (1999). Obesity and Asthma: Cause for Concern? *Clin Exp Allergy*. 29:291-3.
- 39 Huang SL., Shiao G., Chou P. (1999). Association Between Body Mass Index and Allergy in Teenage Girls in Taiwan. *Clin Exp Allergy*. 29:323-9
- 40 Stenius-Aarniala B., Poussa T., et al. (2000) Immediate and Long Term Effects of Weight Reduction in Obese People with Asthma: Randomized Controlled Study. *BMJ*: 320:827-32
- 41 Hakala K., Stenius-Aarniala B., et al. (2000). Effects of Weight Loss on Peak Flow Variability, Airway Obstruction, and Lung Volumes in Obese Patients with Asthma. *Chest*;118:1315-21
- 42 Washington State Department of Health. *Obesity in Washington*. 8/31/2004. http://www.doh.wa.gov/cfh/CWP/Fact_Sheets/FS_Obesity.pdf
- 43 National Parent Teacher Association. *Healthy Children, Successful Students Comprehensive School Health Programs*. www.pta.org/parentinvolvement/healthsafety/h_s_healthprogram.asp
- 44 Mendell MJ., Heath G. (2004). *A Summary of Scientific Findings on Adverse Effects of Indoor Environments on Students' Health, Academic Performance and Attendance*. Prepared for US Dept of Education

Safe, Enjoyable Physical Education and Activity Opportunities

Asthma symptoms have been reported as a cause of restricting physical activity. In preschoolers, learning and socializing opportunities are likely to be impaired if they are unable to join in normal activities with their peers because of asthma.³¹ A study conducted by the CDC found that almost 30 percent of children with asthma reported experiencing physical activity limitations compared with only 5% of children without asthma.³²

Educated school staff can help children with asthma keep active and maintain involvement with their peers. Adults at school can monitor symptoms, help to reduce triggers, ensure medication is easily accessible and is used (when indicated) before physical activity, and modify activities when needed. These adults might include nurses, teachers, para-educators, parent volunteers, administrators, childcare center employees, school coaches, bus drivers and band/chorale directors.³³ Additionally, maintenance staff and others should receive training in exposures in the school environment that can lead to the development of worsening of asthma.

Physical activity is important to all children; however, it is especially important for the children with asthma because strenuous exercise strengthens and stretches the airway that helps to maintain elasticity.^{34,35,36} Asthma diagnosis can sometimes be utilized by children to self-exclude themselves from physical activities. Children with well-maintained asthma should be able to participate in physical activities. If the planned activity is outdoors, it is important to have an asthma action plan (in schools this may be called an individual health plan) in place to raise awareness of asthma triggers that a child may come into contact with while exercising (e.g., grasses, air pollution).

Additionally, lack of exercise can contribute to obesity in children. Multiple studies, including a few longitudinal studies, suggest an association with being overweight/obese and a higher prevalence of asthma or greater risk of developing asthma, especially in females.^{37,38,39} It has also been shown that a reduction of weight can improve lung function, asthma symptoms, morbidity, and health status.^{40,41} The prevalence of obesity in the United States and Washington State has doubled over the past decade. In Washington State, 21% of high school students were overweight or at risk of becoming overweight.⁴²

Coordinated School, Family and Community Efforts to Better Manage Asthma Symptoms and Reduce School Absences

Although it is uniformly understood that the well-being of children is primarily the responsibility of the family, a shared responsibility for the whole community and all of its institutions \ is widely recognized.⁴³ Schools, parents, teachers and school-based organizations can assist with asthma education, encourage school policies that address asthma prevention (reduction of asthma triggers) and can provide referrals for families with asthma.

Safe and Healthy School Environment to Reduce Asthma Triggers

Children with asthma can be affected by environmental factors in the school setting. Asthma attacks and related health outcomes can be linked with environmental causes (triggers) such as air pollutants, temperature extremes, sights, sounds, and odors. These environmental triggers may also contribute to poor academic performance.⁴⁴

Reduction of asthma triggers in the school (such as molds) can help provide a healthy school environment that supports learning. This may also benefit the health of other children. The Environmental Protection Agency (EPA) recently completed a literature search and found

evidence suggesting schools and other settings with indoor air pollution or inadequate ventilation can decrease student and teacher performance.⁴⁵ These studies reinforce others that relate decreases in indoor air quality with increased frequency of adverse health symptoms or absenteeism. Indoor air quality management in schools, including pollutant source control and provisions for adequate ventilation, appear to improve student and teacher health, increase school attendance, and improve student performance. Correcting the pervasive problem of inadequate ventilation in schools provides a significant opportunity to improve school conditions and lead to improved performance of teachers and students alike.

The Role of Educational Facilities Staff

The quality of the school learning environment can have a significant effect on student health and consequently on learning and performance. The school learning environment is affected by numerous factors including air quality and physical parameters such as temperature and humidity, which may diminish an individual's attention, memory, cognitive function, physical health and comfort. With regard to asthma, inhaled particulate matter (animal dander, dusts, molds, etc) can have a significant impact on student asthma events in terms of numbers and severity. Students and staff perform at their best in environments that are safe, clean and orderly including well-ventilated, lighted and maintained classrooms.⁴⁶ Facilities staff can play a vital role in the air quality and overall health of the school building by accomplishing day-to-day cleaning and long-term maintenance of school facilities.

Some indoor air quality problems may not be preventable, but can be reduced when well-trained staff and adequate resources are in place to assist in early problem identification.⁴⁷ Anecdotal evidence suggests that school funding cuts in many areas of the state have reduced cleaning frequency and resulted in the deferment of long-term facility maintenance projects.⁴⁸ These trends are likely to adversely impact indoor air quality in affected schools.

Given the overall rise in the rate of children with asthma in recent years, greater emphasis should be placed on improving and maintaining school environmental quality through the provision of adequate resources, monitoring for and providing timely maintenance repairs.

In Washington State at least three programs have been implemented to address asthma environmental trigger identification in the school setting. These programs are the Washington State University Energy Program Indoor Air Quality Program, the Washington State Department of Health's Tools for Schools, and the Spokane Asthma-Friendly Schools Initiative Demonstration project.

Please refer to the *Asthma and the Environment* chapter for more discussion on school environments.

Smoking and Asthma

Since tobacco smoke is a trigger for asthma, the Washington State Department of Health's (DOH) efforts to youth focused efforts to reduce tobacco use are important to reducing exposure to a contributor to asthma. Studies have shown that 45 children in Washington State start using tobacco every day and one-third of them will eventually die from tobacco-related diseases. The DOH Tobacco Prevention and Control Program conducts a comprehensive, innovative, and diverse campaign to prevent youth from beginning tobacco use. As a result of these efforts, there are about 65,000 fewer Washington kids smoking than before the program began in 1999.⁴⁹ Schools can play a role in reducing smoking in youth through participating in youth tobacco cessation and prevention programs.

For a more complete discussion on environmental triggers, including smoking and environmental assessments in the schools see the *Asthma and the Environment* chapter.



Trigger

A factor that may bring on or increase the signs and symptoms of asthma.

45 Environmental Protection Agency. *EPA Indoor Air Quality and Student Performance Fact Sheet*. 8/30. Publication number 402-K-03-006. http://www.epa.gov/iaq/schools/images/iaq_and_student_performance.pdf

46 US Department of Education, National Center for Educational Statistics, National Forum on Education Statistics. (2003). *Planning Guide for Maintaining School Facilities*. NCES 2003-347, prepared by Szuba T., Young R., and the Schools Facilities Maintenance Task Force. Washington DC. pg. 8

47 Ibid. pg 45

48 Personal communications with Glen Patrick, Washington State Department of Health

49 Washington State Department. (2005) *Tobacco Prevention and Control Program Progress Report*. <http://www.doh.wa.gov/Tobacco/youth/youth.htm>



Current Activities

In Washington several projects have aimed at addressing asthma in the schools, some of these are listed below.

Asthma Management in Educational Setting (AMES) is a comprehensive guide to asthma for school nurses. AMES is a tool utilized by schools to identify recommendations and policies and to obtain Washington State resources to address asthma. It was developed by the Washington Asthma Initiative (WAI) in 2001 and updated in 2004. In 2005, the guide was placed on a CD-ROM and distributed to every school in Washington State.

In 2003, the Washington State Legislature passed the *Clean School Bus Program* that allocated \$5 million per year for five years to retrofit diesel school buses with air pollution control technology that reduces toxic diesel emissions. Washington is the largest statewide, state-funded, voluntary school bus retrofit program in the country.

Vehicle-related air pollutants are associated with thousands of cases of chronic respiratory illness and cardiovascular problems.⁵⁰ In 2004, the Department of Ecology, in partnership with the Oregon Department of Environmental Quality and Washington and Oregon's local air agencies, created the *No Idle Zone - Dare to Care About the Air* program. This program is designed to motivate bus drivers, parents and others to turn off their engines rather than idling vehicles at schools. In 2004, it was piloted at three local schools and showed a 56% reduction in idling in school pick-up/drop-off areas when compared to the non-studied schools.⁵¹

Asthma in the Educational Settings

Goal 1: Increase the number of 'asthma-friendly' schools in Washington State

Objective AES.1

By 2010, increase the number of schools reporting policies in place that implement emergency care plans for all identified students with asthma

Strategies

- Connect schools with medical providers to provide coordination of care, action plans and medications
- Collaborate with OSPI and other key stakeholders to address asthma prevention and management in the school
- Support policies that improve school health services for students with asthma including increased school nurse services
- Work with health care provider groups to develop a consensus statement that all asthma diagnoses in children are considered to be life-threatening
- Develop a model policy consistent with federal and state guidelines for utilization by school districts to implement asthma management/action plans for all children with asthma in the school-setting
- Support policies that provide specific care information to all school personnel responsible for the health and safety of children with asthma during the school day (e.g., bus drivers, teachers, other staff)
- Develop policies that require all school staff (including bus and playground personnel) to have been trained, received delegations, and been supervised by a Registered Nurse to administer asthma medications safely and accurately
- Create/identify and promote school-based asthma training manuals for utilization by all school staff

50 American Lung Association. *State of the Air 2004*. http://lungaction.org/reports/sota04_table2.html

51 Department of Ecology Air Quality Program. (2005) *Anti Idling Campaign. Dar to Care About the Air*. PRR: Seattle, WA

- Promote the utilization of the *Asthma Management in the Educational Setting* (AMES) manual and/or other asthma related school-based resource materials (e.g., Asthma-Friendly Schools)
- Provide safe, enjoyable physical education and activity opportunities for students with asthma which includes access to medication prior to and during activities⁵²
- Educate, support and involve family members in efforts to reduce students' asthma symptoms and school absences⁵³
- Support policies that decrease the nurse/student ratio to more closely comply with the national ratio
- Support policies that require a significant increase in the number nursing and facility staff hours available in each school building

Objective AES.2

By 2007, expand asthma-related school-based data collection systems in Washington State

Strategies

- Revise the CDC's school health evaluation program or other available school-based data collection systems to include asthma-related assessment of primary schools in Washington State
- Explore possibilities of collecting uniform data on asthma-related school absences through existing or new data collection systems.

Objective AES.3

By 2010, increase the number of schools utilizing an evidence-based school environmental assessment program

Strategies

- Develop a model policy requiring schools to conduct yearly environmental assessments to reduce asthma triggers in the school-based setting
- Expand resources to support the use of Tools for Schools program and/or other environmental assessment programs designed to identify, evaluate and mitigate environmental issues in the schools
- Increase the utilization of integrated pest management techniques to control pests in the schools⁵⁴
- Provide technical assistance to schools for low-cost environmental solutions/resources
- Increase the number of school-based science labs that report limited stock of chemicals in the classroom
- Partner with schools to design and implement facility and grounds maintenance policies and protocols that promote a healthy school environment

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52 Centers for Disease Control and Prevention.(2002). *Strategies for Addressing Asthma within a Coordinated School Health Program, With Updated Resources*. Atlanta Georgia: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion.

53 Einhorn E., DiMaio M. (2000). *An Interdisciplinary Program to Control Pediatric Asthma. Continuum*;8-13

54 Centers for Disease Control and Prevention.(2002). *Strategies for Addressing Asthma within a Coordinated School Health Program, With Updated Resources*. Atlanta Georgia: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion.

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